

From procedure to recovery: The key role of serial chest x-rays in post CT-guided lung biopsy monitoring

Northern Health



RESEARCH WEEK
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INSPIRED RESEARCHERS
Northern Health

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INTRODUCTION

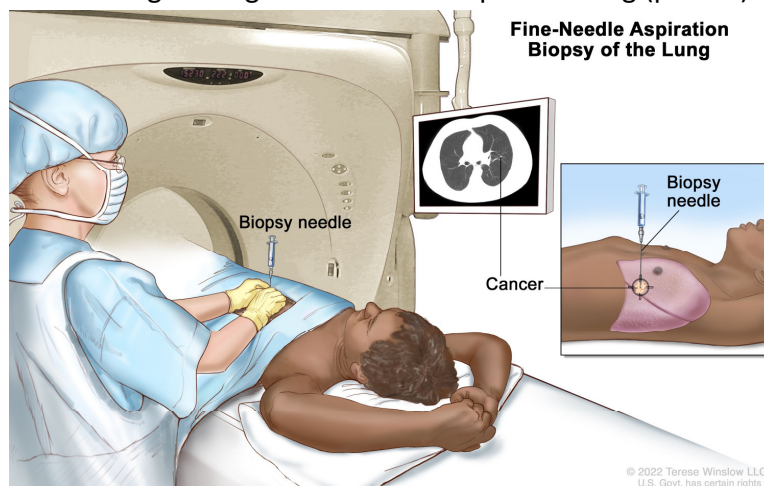
CT-guided lung biopsy is a minimally invasive, accurate method for diagnosing lung lesions, offering superior precision for small or deep targets. Pneumothorax is the most common complication (12–45%), usually detected soon after but sometimes delayed, requiring follow-up CXRs.

OBJECTIVE

To determine the incidence, clinical significance, and predictors of pneumothorax after CT-guided lung biopsy, and assess the value of serial CXRs at 1, 2, and 4 hours in detecting early or delayed pneumothorax.

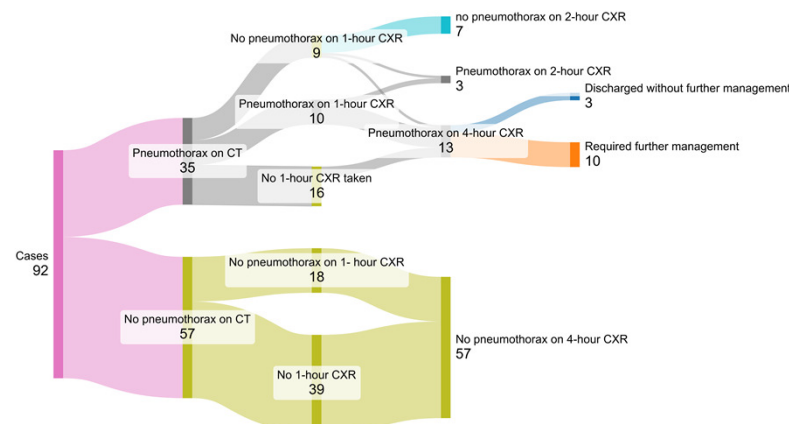
METHODOLOGY

A retrospective review of 92 CT-guided lung biopsies performed between Jan 2023 and June 2025 at a single institution. Patient demographics, biopsy technique, lesion characteristics, and pneumothorax incidence were analysed. Statistical analysis included logistic regression and chi-square testing ($p < 0.05$).



RESULTS

- Pneumothorax occurred in 38% (35/92) of CT-guided lung biopsies.
- All cases were detected immediately on post-biopsy CT; none were delayed.
- At 4-hour CXR, 54% had resolved; 3 patients were discharged without intervention.
- 43% (15/35) of pneumothoraces required management; 2 needed chest tube insertion.
- Incidence was higher in lower-lobe lesions and with fewer needle passes ($p=0.01$, $p=0.003$).
- Routine serial CXRs are likely unnecessary in asymptomatic patients with no pneumothorax on initial CT.
- Follow-up CXRs at 4 hours support safe discharge for stable patients with small pneumothoraces.
- Findings support tailored post-biopsy monitoring based on initial imaging and clinical status



CONCLUSION

Post-biopsy CT effectively detects pneumothorax. Routine CXRs may be unnecessary in asymptomatic patients with negative CT findings but remain important for monitoring known cases. Standardised protocols could reduce imaging and improve safety.



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